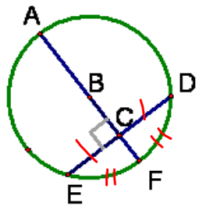
11.4 Arcs and Chords

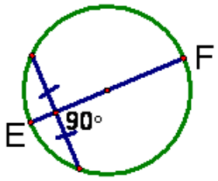
Theorem 11.4-If a diameter of a circle is perpendicular to a chord, then the diameter bisects the chord and its arc.

$\overline{EC} = \overline{CD}$

$\overset{\frown}{EF} = \overset{\frown}{FD}$

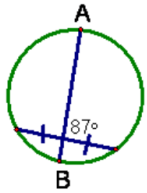


Theorem 11.5-If one chord is a perpendicular bisector of another chord, then the first chord is the diameter.

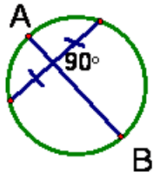


$\overline{EF}$ is the diameter

Is $\overline{AB}$ a diameter?



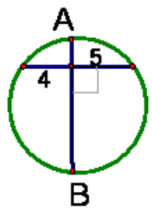
No



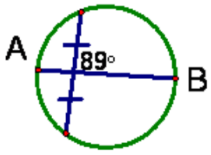
Yes

Is $\overline{AB}$ a diameter?

No



No

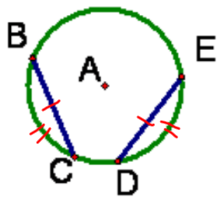


Theorem 11.6-in the same circle, or congruent circles:

- Two chords are congruent if their minor arcs are congruent.
- Two minor arcs are congruent, if their chords are congruent.

If BC = DE,

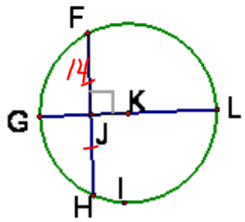
then $\overset{\frown}{BC} = \overset{\frown}{DE}$



Examples:

FJ = 14

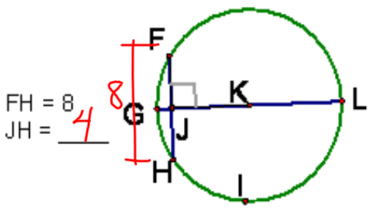
JH = 14



Examples:

FH = 8

JH = 4

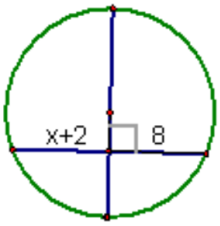


Examples:

x = 6

$x+2=8$

$x=6$

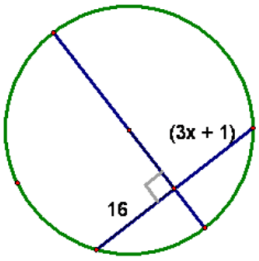


x = 5

$3x+1=16$

$3x=15$

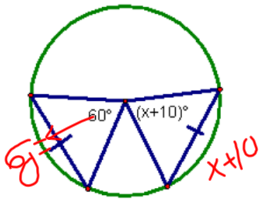
$x=5$



Examples:

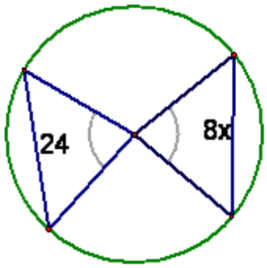
x = 50

$x+10=60$



Examples:

x = 3



HW
p610-611
3-11, 15-18